

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 91-038
NPDES NO. CA0028908

WASTE DISCHARGE REQUIREMENTS FOR:

RAYTHEON COMPANY
350 ELLIS STREET FACILITY
MOUNTAIN VIEW, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Raytheon Company, hereinafter called the discharger, by application dated August 1, 1990, has applied for reissuance of waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES).
2. The discharger occupies approximately 20 acres of land in Mountain View. The discharger is principally involved in electrical semi-conductor manufacturing. Due to leaks of chemicals from the facility the site has been placed on the National Priority List and the site cleanup is being directed by EPA pursuant to CERCLA/SARA. Groundwater extraction and treatment is part of the site cleanup plan.
3. The discharger proposes to treat the contaminated groundwater being discharged from the site. The treatment system will consist of an air stripper to reduce volatile organic compounds (VOCs) in the groundwater.

The discharger proposes to discharge from this treatment system an average of 57,000 gallons per day (gpd) of treated groundwater to a storm drain which is tributary to Stevens Creek, Whisman Slough, and San Francisco Bay.

The discharger has considered the feasibility of reclamation, reuse, or discharge to a publicly owned treatment works (POTW), as specified in Board Resolution No. 88-160. Reclamation or reuse are not feasible since the quality of the extracted groundwater is not appropriate for the industrial uses and currently irrigation demand is met by reuse of industrial process reject waters. The discharger is evaluating the off-site use of extracted groundwater in cooperation with the City of Mountain View. Discharge to the POTW is prohibited by city ordinance.

4. Groundwater to be treated from the site has been sampled and eight VOCs have been detected. These include 1,1 dichloroethane (1,1 DCA) at 70 ppb, 1,2 dichloroethane (1,2 DCA) at 50 ppb, 1,1 dichloroethene (1,1 DCE) at 25 ppb, trans 1,2 dichloroethene (trans 1,2 DCE) at 795 ppb, 1,1,1

trichloroethane (TCA) at 20 ppb, 1,1,2 trichloroethane (1,1,2 TCA) at less than 20 ppb, trichloroethene (TCE) at 780 ppb, and vinyl chloride at 92 ppb.

5. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for Adobe Creek and South San Francisco Bay.
6. The existing and potential beneficial uses of South San Francisco Bay include:
 - Contact and non-contact water recreation
 - Wildlife habitat
 - Preservation of rare and endangered species
 - Estuarine habitat
 - Fish spawning and migration
 - Industrial service supply
 - Shellfishing
 - Navigation
 - Ocean commercial and sport fishing
7. The Basin Plan prohibits discharge of wastewater which has "particular characteristics of concern to beneficial uses" (a) "at any point in San Francisco Bay south of the Dumbarton Bridge" and (b) "at any point where the wastewater does not receive a minimum initial dilution of at least 10:1 or into any nontidal water, dead-end slough, similar confined water, or any immediate tributary thereof".
8. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 7 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.
9. Exceptions to the prohibitions referred to in Finding 7 are warranted because this discharge is an integral part of a program to cleanup polluted groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would affect beneficial uses. Should studies indicate chronic effects, not currently anticipated, the Board will review the requirements of this Order.
10. The Basin Plan prohibits the discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin". The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plans constitute an acceptable control program for minimizing the discharge of toxicants to waters of the State.
11. Effluent limitations of this Order are based on the Clean Water Act, Basin Plan, State and U.S. Environmental

Protection Agency (EPA) plans and policies, and best engineering judgement. EPA Region IX draft guidance "NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document" was also considered in the determination of effluent limits.

12. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
13. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.
14. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. EFFLUENT LIMITATIONS

1. Effluent flow shall not exceed 57,000 gpd.
2. The effluent, at the discharge point to the storm drain, shall not contain constituents in excess of the following limits:

<u>Constituent</u>	<u>Instantaneous Maximum (ug/l)</u>
<u>VOCs</u>	
1,1 dichloroethane	5.0
1,2 dichloroethane	5.0
1,1 dichloroethene	5.0
trans 1,2-dichloroethene	5.0
1,1,1 trichloroethane	5.0
1,1,2 trichloroethane	5.0
trichloroethene	5.0
vinyl chloride	5.0

Metals

arsenic	20.0
cadmium	10.0
chromium (VI)	11.0
copper	20.0
lead	5.6
mercury	1.0
nickel	7.1
silver	2.3
zinc	58.0

3. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.
4. In any representative set of samples, the discharge shall meet the following limit of quality:

Toxicity: The survival of rainbow trout in 96-hour bioassays of the effluent shall be a median of 90% survival and a 90 percentile value of not less than 70% survival.

B. RECEIVING WATER LIMITATIONS

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place:
 - a. floating, suspended, or deposited macroscopic matter or foam;
 - b. bottom deposits or aquatic growths;
 - c. alteration of temperature or apparent color beyond present natural background levels;
 - d. visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - e. toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
 - a. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - b. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the

dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than specified above, the discharge shall not cause further reduction in the concentration of dissolved oxygen.

- c. Un-ionized ammonia (as N): 0.025 mg/l annual mean
0.4 mg/l maximum

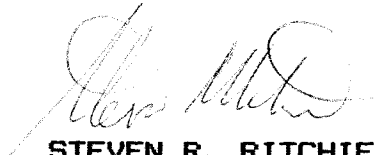
3. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. PROVISIONS

1. The discharger shall comply with all sections of this Order immediately upon adoption by the Board and upon starting any discharge.
2. The discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.
3. The discharger shall notify the Board if any activity has occurred or will occur which would result in the discharge, on a frequent or routine basis, of any toxic pollutant which is not limited by this Order.
4. Any discharge to a location other than the discharge point specified in this Order will require a modification to this Order or submission of a second NPDES application.
5. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986 and modified January 1987, except items A.10, B.2, B.3, C.8 and C.11.
6. This Order expires on March 20, 1996. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the Code of California Regulations no later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.
7. This Order shall serve as a National Pollution Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its

issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the forgoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 20, 1991.



STEVEN R. RITCHIE
Executive Officer

Attachments: Self-Monitoring Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

Raytheon Company
350 Ellis Street Facility
Mountain View, Santa Clara County

NPDES NO. CA0028908

ORDER NO. 91-038

CONSISTS OF:

PART A Dated December 1986 Modified January 1987

PART B Adopted on March 20, 1991

PART B

RAYTHEON COMPANY
350 Ellis Street Facility
Mountain View, Santa Clara County

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

<u>Station</u>	<u>Description</u>
----------------	--------------------

I-001	At a point in the groundwater extraction system immediately prior to treatment.
-------	---

B. EFFLUENT

<u>Station</u>	<u>Description</u>
----------------	--------------------

E-001	At a point immediately following treatment.
-------	---

C. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
----------------	--------------------

C-001	At a point in Stevens Creek at least 100 feet but no more than 200 feet downstream from the storm drain discharge point of the effluent into Stevens Creek.
-------	---

C-002	At a point in Stevens Creek at least 100 feet but no more than 200 feet upstream from the storm drain discharge point of the effluent into Stevens Creek.
-------	---

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Table A.

III. MODIFICATIONS TO PART A, DATED DECEMBER 1986 AND MODIFIED JANUARY 1987

All items of Self-Monitoring Program Part A, dated December 1986 and as modified January 1987, shall be complied with except for the following:

- A. Additions to Part A: Section 6.4.d.5: "Results from each required analysis and observation shall be submitted as laboratory originated data summary sheets in the quarterly self-monitoring reports. All

chromatographic peaks for purgeable halocarbons and/or volatile organics shall be identified in any effluent sample, then these peaks shall be confirmed based on analyses using chemical standards necessary to achieve proper identification and quantification. Results shall also be submitted for any additional analyses performed by the discharger at the specific request of the Board for parameters for which effluent limits have been established and provided to the discharger by the Board."

- B. Deletions from Part A: Sections D.2.b., D.2.g., D.3.b., E.1.e.1., E.1.f., E.2.b., E.3., E.4., E.5., F.2.b., G.2., G.4.b., and G.4.f.

- C. Modifications to Part A: For the following, the discharger shall comply with the Sections as changed and reported herein:

1. Section D.2.a. is changed to read:

"Samples of effluent and receiving waters shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan."

2. Section D.2.d. is changed to read:

"If two consecutive samples of any one constituent or parameter monitored on a weekly or monthly basis in a 30-day period exceed the effluent limit or are otherwise out of compliance, or if the required sampling frequency is once per month or less (quarterly, annually or other) and the sample or parameter exceeds the limit or is otherwise out of compliance, the discharger shall implement procedure(s) acceptable to or approved by the Board's Executive Officer, on a case by case basis."

3. Section D.2.e. is changed to read:

"If any instantaneous maximum limit is exceeded, within 24 hours of receiving the analytical results indicating the violation, a confirmation sample shall be taken and analyzed with 24 hour turn-around time. If the instantaneous maximum is violated in the second sample, the discharger shall monitor daily, and shall not resume normal monitoring until the cause of the violation is found and corrected or the Board's Executive Officer authorizes the frequency of monitoring to be changed."

4. In Section F.1, the phrase "(at the waste treatment plant)" is changed to read "(at the locations of the various extraction and treatment systems)."
5. Written reports required in Section G.4 shall be filed quarterly by the thirtieth day following the end of a calendar quarter.
6. Section G.4.e is changed to read:

"Summary tabulations of the data shall include, for each constituent, total number of analyses, maximum, minimum, and average values for each period. Total flow data shall also be included. This information shall be prepared in a format similar to EPA Form 3320-1. This information shall be submitted only to the regional Board:

Executive Officer
California Regional Water Quality Control Board
1800 Harrison Street, Suite 700
Oakland, CA 94612
7. The Annual Report required in Section G.5 shall be submitted by January 30 of each year in place of the quarterly report due on the same day.

IV. MISCELLANEOUS REPORTING

If any chemicals or additives are proposed to be used in the operation and /or maintenance of the groundwater extraction/treatment system, the discharger shall obtain the Executive Officer's concurrence prior to use. The details concerning such approved use shall be reported in the next periodic report submitted to the Board.

I, Steven R. Ritchie, Executive Officer, hereby certify that the forgoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 91-038.
2. Was adopted by the Board on March 20, 1991.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer or Regional Board.



STEVEN R. RITCHIE
Executive Officer

Attachment: Table A

TABLE A: SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLE STATION	I-001	E-001	C-001	C-002
TYPE OF SAMPLE	Grab	Grab	Grab	Grab
FLOW RATE (GPD)		M		
FISH TOXICITY		Y		
96-HR TL				
%SURVIVAL				
AMMONIA NITROGEN		V		
pH (UNITS)		M	Q	Q
DISSOLVED OXYGEN		Y	Y	Y
MG/L & % SATURATION				
TEMPERATURE (C)		M	Q	Q
ARSENIC		Y		
CADMIUM		Y		
CHROMIUM TOTAL		Y		
COPPER		Y		
SILVER		Y		
LEAD		Y		
MERCURY		Y		
NICKEL		Y		
ZINC		Y		
EPA METHODS 601/602	Y	Q		
EPA METHOD 624*	Y	Y		
OPEN SCAN				
STANDARD OBSERVATIONS			Q	Q

LEGEND FOR TABLE A

- * Annual 624 sampling may substitute for that quarter's 601/602 sampling.
- M Monthly sampling
- V Varies; total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet specified percent survival.
- Y Annually